

**\*TC 3-04.62** (TC 1-611)  
Publication Date (Draft)

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**Small Unmanned Aircraft System  
Aircrew Training Program**

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Training Circular  
No. 3-04.62 (1-611)

Headquarters  
Department of the Army  
Washington, DC, (Draft)

# Small Unmanned Aircraft System Aircrew Training Program

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\*This publication supersedes TC 1-611, dated 2 August 2008.

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## **Preface**

Training circular (TC) 3-04.62 standardizes aircrew training programs (ATPs) and flight evaluation procedures by providing specific guidelines for executing small unmanned aircraft system (SUAS) aircrew training. This aircrew training manual (ATM) is based on the battle-focused training principles outlined in Field Manual (FM) 7-0. It establishes crewmember qualification, refresher, mission, and continuation training and evaluation requirements. This TC applies to all SUAS crewmembers and their commanders and any unmanned aircraft system (UAS) crewmembers and their commanders not covered by another ATM.

This manual in conjunction with Army regulations (ARs) will help SUAS commanders at all levels develop a comprehensive aircrew training program. By using the ATM, commanders ensure that individual and crew proficiency match their units' mission and that unmanned aircraft crewmembers (UACs) routinely employ standard techniques and procedures. UACs will use this manual as a "how to" source for performing crewmember duties.

This manual provides performance standards and evaluation guidelines so that crewmembers know the level of performance expected. Each task has a description that describes how it should be done to meet the standard.

Commanding officers and master trainers (MTs) will use this manual, AR 95-23, and AR 95-20 as the primary tools to assist the commander in developing and implementing this ATP.

This TC applies to the Active Army, the Army National Guard (ARNG), and the United States Army Reserve (USAR). In addition, this manual applies to any SUAS (whether a fielded or equipped system, or a system still in the testing portion of the acquisition process) and crewmembers of all SUAS not covered by another ATM.

The proponent of this publication is United States Army Training and Doctrine Command (TRADOC). Send comments and recommendations on Department of the Army (DA) Form 2028 (Recommended Changes to Publications and Blank Forms) through the unit commander to Commander, United States Army Aviation Center of Excellence (USAACE), Fort Rucker, ATTN:ATZQ-TDT-F, Building 4507 Andrews Avenue, Fort Rucker, Alabama 36362-5000, or via automated link to <http://www.apd.army.mil>. Questions and/or recommended changes may be emailed to [usarmy.rucker.avncoe.mbx.atzq-tdt-f@mail.mil](mailto:usarmy.rucker.avncoe.mbx.atzq-tdt-f@mail.mil), or via website <https://www.us.army.mil/suite/page/655026>.

This publication has been reviewed for operations security considerations.



## **Chapter 1**

# **Introduction**

The training objective of any combat unit is for the unit to be able to conduct combined arms training (CAT). The SUAS unit training program (ATP) focuses on individual and crew training. Once the unit establishes individual and crew training programs, it must integrate them into an effective collective training program. TC 3-04.62 links individual and unit collective tasks. The design and management of an effective training program requires the commander to analyze each of these elements. The mission essential task list (METL) identifies collective training and defines the unit as a member of the combined arms team. To ensure the combat proficiency of Army SUAS operators in the combined arms effort, individual proficiency in tasks required to operate an SUAS is essential.

## **RESPONSIBILITIES**

### **COMMANDER**

1-1. According to FM 7-0, the commander is the primary training manager and trainer for the unit and is responsible for safety programs, standardization programs, and the ATP. The commander bases training on the unit's wartime mission, maintains standards, and evaluates proficiency. The commander also provides the required resources and develops and executes training plans that result in proficient individuals, leaders, and units. The commander has subordinate leaders (officers and noncommissioned officers) that help him or her plan and prepare SUAS training.

### **MASTER TRAINER**

1-2. The SUAS MT is the commander's technical advisor. The MT helps the commander develop, implement, and manage the ATP. The MT designated to conduct initial qualification training will conduct this training in accordance with (IAW) a TRADOC-approved SUAS exportable training package/program of instruction (POI).

1-3. To perform MT duties, the MT will be a graduate of the new three week MT course conducted at Fort Benning, GA, or a Mobile Training Team dispatched from the institutional base at Fort Benning, GA. The MT will be current and mission qualified (MQ) in the SUAS in which the MT will be performing his or her duties. The MT will conduct unit qualification (mission level [ML] progression), refresher, and continuation training only for personnel who have completed an approved SUAS initial qualification course. Upon completion of the TRADOC-approved MT course or the first field grade commander with organic SUAS assets has the authority to appoint MTs.

1-4. Those MTs selected to conduct initial qualification training IAW a TRADOC-approved POI and appendix will be designated by the first colonel in the chain of command. Initial qualification training will be managed at brigade level or higher by a designated MT that is a qualified, current, MQ, and a graduate of the 3 week MT course only. Graduates of the course located at other levels of command will assist the brigade level MT in the conduct of the basic operator's course when required. Those MT graduates of the 3-week MT course not designated as brigade level MTs and those MTs that attained qualification via the old MT course or DES equivalency can continue to execute the duties of MT IAW with paragraph 1-3 of this TC.

**Chapter 1**

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**AIRCRAFT OPERATOR**

- 1-5. These individuals perform duties that are essential to the operation of the SUAS.

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*Note.* Aircraft operators (AOs) will perform duties as aircraft/mission operators.

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## Chapter 2

# Aircraft Training Program

This chapter describes requirements for unit qualification (ML progression), refresher and continuation training. The SUAS ATP standardizes UAC training and evaluations to ensure combat readiness. Crewmember qualification requirements will be IAW AR 95-23 and this ATM.

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*Note.* This ATM uses many terms with which SUAS operators may not be familiar. Understanding of these terms is necessary in the use of this publication; therefore, this chapter explains these terms as appropriate.

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## OVERVIEW

2-1. Goal and applicability. The goal of the ATP is to produce mission-ready SUAS operators. The ATP outlined in this ATM is mandatory for all crewmembers that perform duties controlling the flight of an SUAS or the operation of its mission equipment, as well as preparation, launch, and recovery tasks essential to operate the SUAS. The ATP includes requirements for tasks (see appendix), SUAS simulator, ML progression, and the Semi-Annual Proficiency and Readiness Test (S-APART). UAC assigned or attached to another service/United States Special Operations Command (USSOCOM) will meet the training program requirements of that service. DA civilian/contractor UAC will be trained and evaluated as specified in writing by the commander as necessary to meet the requirements of their military support job description.

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*Note.* The unit commander may excuse a UAC scheduled for retirement or separation from active duty from all ATP requirements. The UAC may be excused beginning no earlier than 6 months prior to their scheduled retirement or separation date. However, UACs who are excused are prohibited from performing further UAC flight duties.

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2-2. Individual/crew qualification. Operators arrive at the unit with various levels of experience. They are recent graduates of a SUAS qualification course or are proven operators with various SUAS backgrounds. These aircrew members progress from mission preparation IAW paragraphs 2-20 and 2-21 to MQ based on a commander's evaluation/proficiency flight evaluation (PFE) by demonstrating proficiency in tasks required (see appendix) and those tasks selected by the commander based on the unit's METL. If required, prior to designation as MQ, training must be conducted and assessed by the appropriate SUAS MT. This process is explained in detail in this TC. This is a prescriptive process mandated by AR 95-23 and must be strictly followed to ensure standardization across our force.

2-3. Mission qualified. MQ operators are those who have completed ML progression training and demonstrated proficiency to be a member of a battle-rostered crew. MQ operators train as crews to sustain and continually improve task proficiency, proficiency in the conduct of the unit's unique METL requirements, and refine the skills necessary to perform as part of the unit.

2-4. Simulators. Simulation is very useful in the conduct of training. Simulators are excellent resources in training emergency procedures, maneuvers that are infrequently conducted with the unmanned aircraft (UA), and as a rehearsal tool for complex portions of operations. They can also be used to correct negative trends found through analysis of accidents, and to practice those skills in a low risk environment. As the fidelity of our simulators improves, environmental training can be very beneficial to our crews.

## **STANDARDIZATION PROGRAM**

2-5. Proficiency versus currency. The fielding of modern aircraft such as the RQ-11B, while exponentially increasing the combat capabilities of SUAS forces, creates diverse operational and training challenges. These increased capabilities require individual and crew proficiencies in very complex mission equipment packages, sometimes compounded by harsh flight environments. An ATP that focuses on operator currency rather than proficiency will no longer satisfy SUAS readiness requirements and will be a detriment to training and safety.

2-6. The objectives of a standardization program are the improvement and sustainment of proficiency and readiness among Soldiers and units throughout the Army. Standardization is accomplished through the universal application of approved practices, procedures, and standards.

2-7. Standardization roles. The commander with SUAS assets is responsible for the unit's standardization program. The commander must include standardization throughout the overall training strategy. The commander's primary standardization staff members include subordinate commanders and unit MTs. Standardization must be implemented in all training tasks. Standardization enables units of any size—crews, multiple-aircraft formations, teams, squads, companies, battalions, or brigades—to readily function together to accomplish the warfighting combined arms mission. (AR 34-4 describes the Army standardization program in further detail.)

2-8. ATP implementation. This publication is the commander's guide for implementing the ATP.

2-9. Integrating operators into the ATP. Upon signing into the unit, operators designated for duty as SUAS operators are members of the unit's ATP. Within 14 days of signing into the unit operators must present their training folder, if applicable, to the commander or the commander's designated representative. If the training folder is not available, operators will provide the MT with small unmanned aircraft systems manager (SUASMAN) account information. ML status determination is per the commander's evaluation.

## **COMMANDER'S EVALUATION**

2-10. Purpose. The purpose of the commander's evaluation is to determine the proficiency and initial ML status of newly assigned operators. This evaluation consists of a records review and a PFE, if required. The commander or MT will complete the evaluation within 45 calendar days after the operator is designated for duty as an SUAS operator.

2-11. Records review. Unit commanders, or their designated representative (MT), will review the operator's training folder. They will compare the individual's qualifications with the tasks required by the assigned duty position. If the appropriate ML status can be determined from the records review, the commander will document the ML status on the individual's DA Form 7122-R (Crew Member Training Record).

2-12. PFE. If the initial ML status cannot be determined by the records review or if the commander desires, the operator will undergo a PFE. The PFE should include tasks from each flight mode in which the operator can expect to perform duties. The results of the PFE will determine the operator's ML status. The commander will document the ML status on the individual's DA Form 7122-R.

2-13. Considerations. If, at the time of initial ML status designation, 6 months has passed since the operator has completed any element of a S-APART (standardization evaluation or SUAS operator's manual examination), the operator must complete that element before designation as, or progression to, MQ. Graduates of an SUAS course who are on their first utilization tour are exempt from this requirement; therefore, commanders may not assign these individuals an initial mission qualified status solely on the basis of a records review.

2-14. Required training. After determining the initial ML status, the commander will direct unit qualification (ML progression training), refresher (if UAC has not flown in 180 days), or continuation (all training and evaluations used for developing proficiency) training for the operator as applicable. Time allotted for completion of the required training will start accruing on the date of the ML status designation.

If recommended by the MT, operators may credit the flight tasks satisfactorily completed on the PFE toward completion of their ML status training requirements.

## **MISSION-LEVEL STATUS PROGRESSION**

2-15. Definition. MLs are the training status classifications of the individual operator. They identify the training phase in which the operator is participating and measure readiness to perform assigned missions. The MLs provide a logical progression of SUAS training based on task proficiency.

2-16. Progression requirements. Operators will progress in ML status by completing tasks in all areas of the SUAS. Once the operator begins training, he or she will have 90 consecutive days to advance from mission preparation to mission qualified status. Once MQ, the operator will have to perform the minimum requirements to maintain this status.

2-17. Exclusion period. ML status progression will exclude days lost due to—

- Temporary duty (TDY) or deployment to a location where the crewmember is unable to fly.
- For RC crewmembers, this includes TDY for civilian employment purposes where the crewmember is physically unable to participate in unit/facility flying activities. This does not include relocation for permanent change of employment.
- Medical or nonmedical suspension from operations.
- Leave approved by the unit commander.
- Grounding of SUAS.
- Non-availability of SUAS due to maintenance or operational considerations, including movement to deployment/redeployment and aircraft preset/reset; preset/reset requirements only apply if 50 percent of the unit's aircraft are not available.

2-18. If the exclusion period exceeds 45 consecutive days, the operator must restart the ML progression cycle. The operator will have 90 consecutive days from this point to progress to the MQ status level. When an operator has not progressed within the required period, the unit commander will investigate, and based on his or her findings, take action according to appropriate directives.

## **MISSION PREPARATION**

2-19. An operator who has been initially designated mission preparation (MP), based on the commander's evaluation, will begin training on all critical and unit selected tasks IAW the appendix as designated by the unit commander. MP programs help operators verify and develop their ability to perform specific tasks that support the unit's METL. Because the goal is proficiency in mission-related tasks, commanders should tailor their task list to meet specific unit needs. An operator progresses from MP to MQ by demonstrating proficiency in all base (1000) and unit (2000) selected tasks to an MT. An operator has 90 consecutive days to progress from MP to MQ. An operator may progress to the MQ status in less time than prescribed in paragraph 2-16 by demonstrating proficiency to an MT. S-APART requirements do not need to be completed while an operator is designated MP. The only requirements are those designated by the commander with assistance from the MT. All MP operators will only operate the system with an MT present and positioned to gain full access to the controls.

## **MISSION QUALIFIED**

2-20. An operator who has completed MP training is considered mission ready and designated MQ. The operator must perform those tasks designated by the unit commander for the operator's table of organization and equipment or table of distribution and allowance position. Once designated MQ, the operator must complete the S-APART requirements.

## TRAINING YEAR

2-21. The ATP training year is divided into semiannual training periods. The first training period begins the first day of October and continues for 6 months. The second training period begins the first day of April and continues through the end of the fiscal year.

## FAILURE TO MEET AIRCREW TRAINING PROGRAM REQUIREMENTS

2-22. Investigations. When ATP requirements are not met, the commander will investigate. The commander will complete the investigation within 30 days of notification of the failure. After investigation, the commander will—

- Take one of the following two actions:
  - Extensions of up to 30 days may be given on a one time basis to complete the requirements. The 30-day extension will start after the commander completes the investigation.
  - Request a waiver of requirements IAW paragraphs 2-23 through 2-26.
- Enter restrictions imposed and waivers/extensions granted on DA Form 7122-R in the individual's training folder.
- Restrict operators from performing duties with the SUAS until ATP requirements are met.
- Restrict operators who fail a hands-on performance test from performing the duty for which he or she was evaluated and failed. The restriction will apply to all SUAS with similar operating and handling characteristics. Restrictions will be entered in the operator's DA Form 7122-R and will remain in effect until successful completion of a re-evaluation.
- When the failure is in the operator's primary SUAS, the commander must—
  - Re-designate the individual to MP.
  - Authorize additional training if necessary.
- When the failure is in the operator's additional or alternate SUAS, the commander must—
  - Re-designate the individual to MP.
  - Authorize additional training if necessary.
  - Re-evaluate, retrain or restrict the UAC from performing duties in that SUAS.

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**Note.** A primary SUAS is the system that the UAC primarily operates for that unit (Raven). An additional SUAS would be another SUAS that the UAC is also trained on that is of the same type (Puma). If the UAC were also trained on a rotary-wing UAS, this would be considered an alternate UAS.

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2-23. Unit waivers. Unit waivers for primary SUAS ATP requirements may be granted only by commanders of the following:

- Direct reporting unit.
- Army Command
- Army Service Component Command.
- USSOCOM.
- Commander, United States Army Reserve Command (USAR units).
- Chief, ARNG-AV for the Chief, National Guard Bureau (ARNG units).

2-24. Waiver authorization. Commanders ranked colonel and above and the State Army Aviation Officer, may grant unit waivers and/or extensions to ATP requirements for units under their command or state/territory affected by operational deployments. These commanders may grant unit extensions for up to 180 days from their self-established "start training date" after redeployment.

2-25. Individual waivers. Individual waivers to primary SUAS ATP requirements may be granted by the first field grade commander or above in the individual's chain of command.

## REMOVAL FROM MISSION QUALIFIED STATUS

2-26. Training deficiency. An operator removed from MQ status for a training deficiency must still meet all MQ ATP requirements. ATP requirements met while in a MP status will be applied to the MQ requirements.

2-27. Other than a training deficiency. An operator has until the end of the training period to complete ATP requirements. If an operator is removed from MQ status for other than a training deficiency before the end of the training period (for example, a permanent change of station departure), his or her ATP requirements no longer apply.

## CURRENCY

2-28. Frequency. To be considered current, an SUAS operator must—

- Perform a launch, a recovery, and a 15-minute flight of the SUAS or utilization of a compatible simulator every 30 consecutive days. For ARNG and USAR the requirement is every 60 consecutive days.
- Perform a launch, a recovery, and a 15-minute flight of the SUAS every 150 consecutive days.

2-29. Tracking. Tracking actual flight time for a flying hour requirement is impractical and not required. Individual flight records folders are not required; however, documentation of flight operations (sorties) for the purpose of tracking currency is required. Commanders will establish procedures for maintenance of personal flight logs. A qualified sortie is a launch, a recovery, and 15-minute flight of the SUAS.

2-30. Currency lapse. The SUAS operator whose currency has lapsed must complete a proficiency flight evaluation IAW this ATM. Simulators may not be used to reestablish currency.

2-31. Waivers. Waivers to currency may only be granted by Deputy Chief of Staff, G-3/5/7 (DAMO-AV), 400 Army Pentagon, Washington, DC 20310-0400, IAW AR 95-23.

2-32. Similar unmanned aircraft systems. Currency in one series SUAS will satisfy the requirement for all SUAS within the series or group; separate currency is required for all other SUAS. Series SUAS with similar operating and handling characteristics are listed below:

- Raven-RQ-11A/B, 4-channel, 8-channel, and Digital Data Link.
- Puma.
- Wasp.

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*Note.* Currency is not considered an element of the ATP.

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## Chapter 3

# Evaluation

This chapter describes evaluation principles and considerations. It also contains guidelines for conducting academic and hands-on performance testing. Evaluations are a primary means of assessing flight standardization and operator proficiency and are a key part of the Army standardization process. Evaluations will be conducted per AR 95-23 and this ATM.

### EVALUATION PRINCIPLES

3-1. The value of any evaluation depends on strict adherence to the fundamental principles described below.

- Selection of MTs. The selection of MTs must not be based only on technical qualifications. Criteria for selecting MTs should include demonstrated performance, objectivity, powers of observation, maturity, judgment, the ability to effectively mitigate risk, and the ability to provide constructive comments.
- Method of evaluation. The method of evaluation must be based on uniform and standard objectives. In addition, the evaluation method must be consistent with the unit's mission and adhere to the appropriate standing operating procedures (SOPs) and regulations.
- Participant understanding. Complete understanding of the purpose of the evaluation, by all concerned, is essential. Moreover, the evaluation must be conducted in a manner that is purpose-oriented.
- Participant cooperation. Cooperation by all participants is necessary to fulfill the evaluation's objectives. The emphasis is on all of the participants, not just the examinee.
- Training needs identification. The evaluation must produce specific findings to identify training needs. General comments do not always provide the direction and guidance essential for improvement. The evaluation must pinpoint both strengths and weaknesses.
- Purpose of evaluation. The evaluation will determine the examinee's ability to perform essential hands-on/academic tasks to prescribed standards. Flight evaluations also will determine the examinee's ability to exercise crew coordination in completing these tasks.

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**Note.** All evaluations of an MT will be conducted by an MT.

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### SEMI-ANNUAL PROFICIENCY AND READINESS TEST

3-2. Purpose and components. The S-APART measures an operator's proficiency and readiness. It consists of a written examination and a hands-on performance test evaluated by an MT as follows:

- SUAS operator's written examination. This open-book exam is prepared at the local level and consists of 25 objective questions that cover the SUAS operator's manual, local airspace, regulations, SOPs, and other pertinent topics as determined by the commander and MT. The minimum passing score is 70 percent.
- Hands-on performance tests. This component consists of oral and flight position evaluations.
  - Paragraph 3-12 lists of oral subjects for the hands-on performance.
  - The appendix lists the evaluation tasks for the hands-on performance.

3-3. S-APART periods. MQ operators must pass each component of the test during their S-APART periods. The S-APART periods are the two-month period ending on March 30th for the first semiannual training period and the two-month period ending on the last day of the fiscal year. While deployed to

## Chapter 3

designated combat or imminent danger areas, the first field grade commander or above in the individual's chain of command should consider reducing this evaluation requirement to once annually. At the end of the training year, the commander must certify that each operator has completed all S-APART requirements. This action serves to recertify the operator in his or her designated duty position(s). An operator designated MQ at any time within this two-month period must complete all S-APART requirements. Operators receive credit for the operator's written examination and hands-on performance test during mission preparation if they complete the tests within the two-month S-APART period.

3-4. Training deficiencies. Operators participating in MP programs are not subject to the S-APART. Operators removed from MQ status due to a training deficiency are subject to the S-APART. **Error! Bookmark not defined..**

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*Note.* S-APART failures-Operators who fail to meet the S-APART standards will be processed IAW paragraph 2-22.

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## NO-NOTICE EVALUATION

3-5. A comprehensive no-notice evaluation program is a valuable tool that allows commanders to monitor training effectiveness at all levels. Each commander must establish a no-notice proficiency evaluation program in the unit SOP. No-notice evaluations may be written, oral, hands-on flight evaluation in a UA/compatible flight simulator, or a combination thereof. Ten percent of these evaluations must be hands-on flight evaluations. This program measures the effectiveness of individual, crew, and collective training. Commanders use the results of no-notice evaluations to ensure unit standardization and readiness and to tailor the unit's individual, crew, and collective training programs. Each operator will receive at least one no-notice evaluation per year.

## PROFICIENCY FLIGHT EVALUATION

3-6. Administration. The commander directs and administers the PFE using the guidelines established in paragraph 2-12. This evaluation is conducted to determine—

- The individual's ML status upon assignment to the unit if the readiness level cannot be determined through a records review.
- The individual's proficiency when SUAS currency has lapsed IAW paragraph 2-30.
- The individual's proficiency when questioned by the commander.

3-7. Records. After the evaluation, the MT will debrief the individual and complete DA Form 7122-R.

## GRADING CONSIDERATIONS

3-8. Oral evaluation. The examinee must demonstrate a working knowledge and understanding of the subject areas presented. The MT will assess the examinee's knowledge during the oral evaluation.

3-9. Hands-on test. Performance standards are based on an ideal situation. Grading is based on meeting the minimum standards. The MT must consider deviations from the ideal during the evaluation and make appropriate adjustments if other than ideal conditions exist.

## CONDUCTING EVALUATIONS

3-10. Purpose, sequence and procedures. Evaluations are conducted to determine the operator's ability to perform appropriate duties. Phase 1 and phase 4 are always required. The MT will determine the amount of time devoted to each phase. When the examinee is a MT, the recommended procedure is for the MT to reverse roles with the examinee. When the MT uses this technique, the examinee must understand how the role-reversal will be conducted and when it will be in effect.

**PHASE 1-INTRODUCTION**

3-11. In this phase, the MT—

- Reviews the examinee's records to verify that the examinee meets all prerequisites for the qualification IAW AR 95-23, appendix D (for example initial PFE, qualification completion, instructor qualification, and/or medical screening).
- Confirms the purpose of the flight evaluation, explains the evaluation procedure, and discusses the evaluation standards and criteria to be used.

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*Note.* If the examinee is an MT, he or she will be evaluated on the ability to apply the learning and teaching process outlined in the Federal Aviation Administration's (FAA) Aviation Instructor's Handbook. The examinee must demonstrate a working knowledge of the conditions, standards, and descriptions of the tasks he or she will be instructing/evaluating. The examinee must also demonstrate the ability to determine when tasks are not performed to standard and how to train to standard.

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**PHASE 2-ACADEMIC/ORAL EXAMINATION**

3-12. The examinee must have a working knowledge and understanding of all applicable topics in the respective subject areas. At a minimum, the MT will select two topics from each appropriate subject area. If the examinee is an MT, he or she will also demonstrate the ability to instruct and evaluate any topic.

- Regulations and publications (ATM, AR 95-23, local SOPs, and regulations). Topics in this subject area are—
  - ATP requirements.
  - SOP requirements.
  - Weather restrictions and procedures.
  - Local airspace usage.
  - Publications required for using the SUAS.
  - Forms and records.
- Operating limitations and restrictions. Topics in this subject area are—
  - Battery limits.
  - Airspeed limits.
  - Environmental restrictions.
  - Other limitations.
- SUAS emergency procedures and malfunction analysis. Topics in this subject area are—
  - Emergency terms and their definitions.
  - Battery malfunctions.
  - Loss of link.
  - Mission equipment.
  - No hub communication.
  - Loss of global positioning system.
- Tactical and mission tasks (TC 3-04.62 and unit SOP). Topics in this subject area are—
  - Mission statement and employment methods.
  - Terrain analysis.
  - Use of FalconView, navigational chart, map, and tactical overlay interpretation.
  - Battlefield environment.
  - Fratricide prevention.
  - Tactical reports.
  - Fire support.
  - Downed UA procedures.

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- Mission equipment.
- Tactical airspace coordination.
- Light amplification by stimulated emission of radiation (LASER) operations.
- LASER performance detractors.
- Night mission operation use of lights.
- Aviation instructor's handbook (FAA-H-8083-9). Topics in this subject area are—
  - The learning process.
  - Effective communication.
  - Teaching methods.
  - Types of evaluations.
  - Planning instructional activity.
  - Flight instructor characteristics and responsibilities.
  - Techniques of flight instruction.
  - Human behavior.
  - Teaching process.
  - The instructor as a critic.
  - Instructional aides.
  - Critiques and evaluations.

### PHASE 3-FLIGHT EVALUATION

3-13. If this phase is required, the following procedures apply:

- Briefing. The MT will explain the flight evaluation procedure and brief the examinee on which tasks will be evaluated. When evaluating an MT, the MT must advise the examinee that during role reversal the MT may deliberately perform some tasks outside the standard to check the examinee's diagnostic and corrective action skills. The MT will conduct or have the examinee conduct a crew briefing.
- Before-flight procedures. The MT will evaluate the examinee's use of the appropriate technical manuals (TMs), checklists (CLs), technical bulletins (TBs), and/or the integrated electronic technical manual (IETM) as appropriate.
- Flight tasks. The MT will evaluate those tasks listed in the appendix. An MT must demonstrate the ability to instruct and/or evaluate the appropriate tasks. When used as part of the proficiency flight evaluation, the evaluation may include an orientation of the local area, checkpoints, and other pertinent information.
- After-landing tasks. The MT will evaluate the examinee's use of the appropriate TMs, CLs, TBs, and/or the IETM as appropriate.

### PHASE 4-DEBRIEFING

3-14. Upon completing the evaluation, the MT will—

- Discuss the examinee's strengths and weaknesses.
- Offer recommendations for improvement.
- Inform the examinee if he or she passed or failed the evaluation and discuss any tasks not performed to standards.
- Complete the applicable/appropriate forms, and ensure the forms are reviewed and initialed by the examinee.

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**Note.** Inform the examinee of any restrictions, limitations, or revocations that the MT will recommend to the commander following an unsatisfactory evaluation.

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## LOCAL AREA ORIENTATION

3-15. Training area orientation. The commander will ensure that operators are given a tour of and a briefing on the training area and facilities. The tour should include the mission planning procedures (location of maps and other flight planning aids) and the airspace operations office. The briefing also should include the items listed below:

- Obtaining maps and charts.
- Obtaining weather information.
- Obtaining range and restricted-area information.
- Information on frequencies and access phone numbers.
- A review of airspace in the local area.

3-16. Range layout and facilities. The commander will ensure that operators are familiar with range facilities.

3-17. Local area orientation flight. Before progressing to MQ, operators will receive a local area orientation flight. Units may conduct this flight along with other training. The commander will determine which orientation items are required for the flight. Items specific to the local area or those that cannot be adequately covered during the ground portion will be pointed out, demonstrated, or discussed during the flight. The orientation flight should include familiarization with local—

- Boundaries.
- Reporting points.
- Prominent terrain features.
- Restricted areas and no-fly areas.
- Tactical training and range areas.
- Airfields, helipads, and frequently used landing zones.
- Obstacles or hazards to flight.

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**Note.** Army commands, particularly those operating near sensitive borders, should establish additional requirements or restrictions for local area orientations.

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## Chapter 4

# Unit Task Development

### AIRCREW TRAINING MANUAL TASK MODEL DEVELOPMENT

4-1. Commanders are authorized to develop additional tasks for inclusion on the commander's task list (CTL), as needed, to accomplish the unit's mission if the appendix does not adequately cover a maneuver or mission that is required. To develop an additional task, the commander will create the task in the format described in this chapter, assign a 3000-series number to the task, and add it to the CTL along with iteration and mode requirements.

4-2. When an additional task is developed by the unit, the commander must perform a risk analysis for performance of the task, and determine training required for personnel to attain proficiency in the task. The commander will ensure that Soldiers receive the necessary academic and flight training for this new task during RL progression and will determine if there is a requirement for an annual evaluation of the task. Commanders will submit a copy of all 3000-series tasks to Commander, USAACE, Directorate of Training and Doctrine, ATTN: ATZQ-TDT-F (UAS Branch), Building 4507, Andrews Avenue, Fort Rucker, Alabama 36362. The additional task(s) must include the following:

- Task number and title.
- Conditions for task performance.
- Standards for task performance.
- Description of task performance.
- Considerations for task performance (such as environmental and safety).
- Training/evaluation requirements.
- References.

### TASK FORMAT

4-3. The following format will be used to develop 3000-series tasks (figure 4-1, page 4-2). Each task element is explained further in the following paragraphs.

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**Note.** The following task is intended for *explanation of formatting style only*; it **does not** constitute doctrinal procedure.

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**TASK 3000****Perform Close Combat Support****WARNING**

**All warnings associated with the task will follow the task title.**

**CONDITIONS:** Condition statements set parameters or sample parameters. They explain what to provide and what to withhold, and may be modified if necessary. Condition statements describe the circumstances under which the task is taught or measured in the learning environment. The individual task condition statement describes the field circumstances (on-the-job or full spectrum operations) under which the individual critical task is performed as closely as possible. It also lists what materials, personnel, and equipment must be provided for task accomplishment.

**STANDARDS:** The individual task standard describes the minimum acceptable level of performance in the field to successfully accomplish the task under the prescribed conditions. It notes how well someone should perform the task to be considered competent. For SUAS flight tasks, standards are based on ideal conditions.

**DESCRIPTION:**

1. Crew actions.
  - a. Ensure that the correct designation for the crewmember is used in the description to avoid confusion.
  - b. Make sure crew actions (for example AO) by all individuals involved to accomplish this task are captured.
2. Procedures.
  - a. Procedures identify the preferred method of accomplishing the task.
  - b. Make sure that all individual (for example AO) procedures involved to accomplish this task are captured.

**ENVIRONMENTAL CONSIDERATIONS:**

1. Task considerations define the different requirements for performing the task under different flight modes or under adverse environmental conditions.
2. They must address the unique requirements of performing the task under those conditions.

**TRAINING AND EVALUATION REQUIREMENTS:**

1. Training. Training may be conducted while operating the aircraft or simulator.
2. Evaluation. The evaluation will be conducted while operating the aircraft.

**REFERENCES:** FM 3-04.126, FM 3-04.140, and AR 95-23.

**Figure 4-1. Example of task format**

**TASK NUMBER**

4-4. Task numbers are uppercase, bolded format. Task numbering begins with 3000 and runs sequentially.

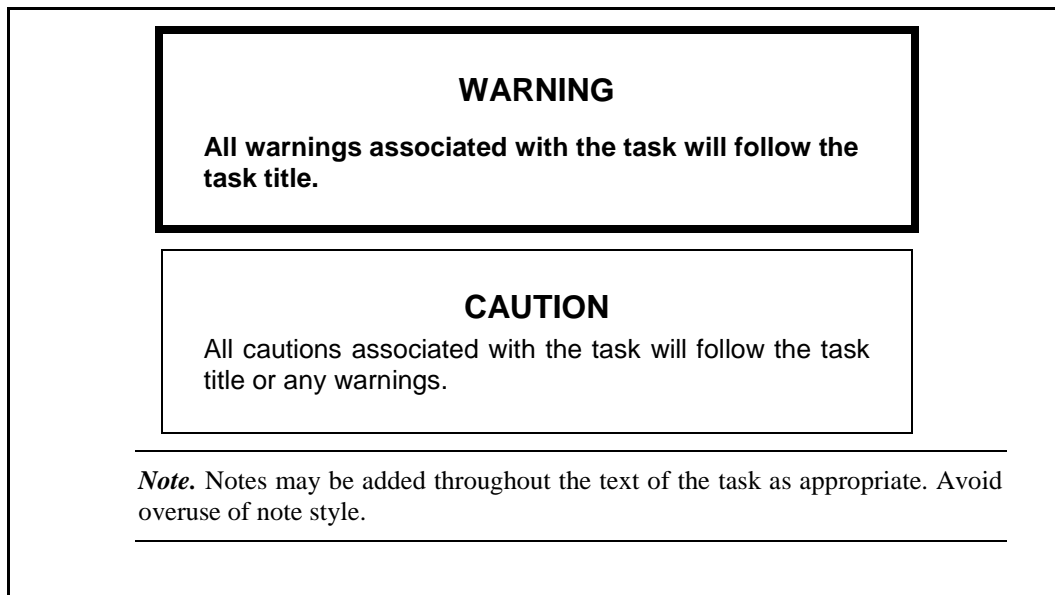
**TASK TITLE**

4-5. The task title describes the performance required of the Soldier on the job. It is frequently referred to as the task. The task title has one action verb, one object, and may also have a qualifier that describes the required action. Task titles are title case, bolded format. Do not use acronyms in the title. Using standard, well-defined verbs (refer to TRADOC Pamphlet 350-70-1, appendix E, table E-2)—

- Provides/promotes clarity.
- Allows analysts, task selection boards, trainers, and Soldiers to understand what the task title means.
- Prevents duplication. Using standard verbs makes it simple to group tasks by verbs to avoid duplication.
- Promotes application of sound training principles.

**WARNINGS, CAUTIONS, AND NOTES**

4-6. Figure 4-2 provides examples of warning, cautions, and notes.



**Figure 4-2. Warning, caution, and note examples**

**CONDITIONS**

4-7. Condition statements set parameters or sample parameters. They explain what to provide and what to withhold, and may be modified if necessary. Condition statements describe the circumstances under which the task is taught or measured in the learning environment. The individual task condition statement describes the field circumstances (on-the-job or full spectrum operations) under which the individual critical task is performed as closely as possible. It also lists what materials, personnel, and equipment must be provided for task accomplishment.

4-8. A condition statement has two parts:

- Cue—a word, situation, or other signal for action. An initiating cue is a signal for an individual to begin performing an individual task. An internal cue is a signal to go from one element of a task to another. A terminating cue indicates task completion.

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- Descriptive data-information that identifies when, why, and where the task is performed and what resources (materials, personnel, and equipment) are required to perform the individual task.

4-9. Write the individual task condition statement in standard paragraph format, containing one or more sentences. Use the following guidelines and tips for writing an individual task condition statement:

- Identify the cue.
  - The cue may be very evident or “understood” when writing a condition statement, and may not require detail.
  - Specifically, identify the cue if it is not evident. Identifying the cue may require studying items, such as, organizational diagrams; mission analysis; threat information; actions performed by outside units, Soldiers, leaders, or events; or procedural manuals.
- Identify/describe the physical setting, or the site of individual task performance. The amount of detail provided varies, based on the effect that the setting has on the task performance.

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**Note.** Not all individual critical tasks are performed on the battlefield or during wartime.

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- **DO NOT** make the setting too generic or too specific. **DO NOT** refer to a training environment. (A task condition is written to field performance, **NOT** training performance.)
- When the task is performed at multiple performance sites, describe all sites, as practicable.

4-10. Figure 4-3, page 4-5, provides examples of individual task condition statements. Write your individual task condition statements in a similar manner. Each example provides discussion points.

<p><b>Condition #1</b></p> <p>Given a constructed defensive position, entrenching tool, and camouflage nets.</p> <p>Discussion: In this example—</p> <ul style="list-style-type: none"> <li>• When is-anytime a Soldier or the Soldier's unit is in danger of attack.</li> <li>• Where is-anywhere a Soldier or the Soldier's unit is in danger of attack.</li> <li>• Why is-because there is a threat to the Soldier and/or the Soldier's unit.</li> <li>• Resources required-an entrenching tool and camouflage nets.</li> </ul>
<p><b>Condition #2</b></p> <p>You have a casualty who is suffering from a burn. The casualty has no other serious wounds or conditions that were not treated. A canteen and first aid packet are available.</p> <p>Discussion: In this example—</p> <ul style="list-style-type: none"> <li>• When is-upon finding a burned casualty.</li> <li>• Where is-whenever there is a burned casualty.</li> <li>• Why is-the burn is the most serious injury and controls the boundary of the task.</li> <li>• Resources required-are limited to the resources on hand, which includes a canteen and first aid packet.</li> </ul>

**Figure 4-3. Individual task condition statements examples**

4-11. Figure 4-4 provides questions that are useful in determining whether condition statements have been well written.

- Does the condition statement address the following issues:
- Describe the conditions under which this task will be performed under operational (field) or selected training conditions?
  - Identify the initiating cue?
  - Identify the physical setting (when and where the Soldier performs the task)?
  - Identify the resources (materials, personnel, and equipment) needed to accomplish the task?
  - Utilize job holder language?
  - List special conditions when applicable?
  - Utilize standard paragraph format?

**Figure 4-4. Condition statement issues**

## SPECIAL CONDITIONS

4-12. A special condition is an aiding or limiting factor that occasionally occurs and affects a Soldier's ability to perform the task to the established standard. These special conditions include, but are not limited to, wearing of mission oriented protective posture level (MOPP) 4, night vision devices, or self-contained breathing apparatus when performing the task (figure 4-5, page 4-6). These unique circumstances are identified as separate special condition statements when conducting the individual task analysis, and are also entered under the conditions tab in the CAC-approved automated development system.

4-13. Writing special condition statements. Once changes to the task performance standard caused by performing the task under a special condition are identified, developers must include them. When writing a special condition statement, be aware that—

- More than one special condition simultaneously may affect task performance.
- A special condition may affect such standards as speed or accuracy.

### **Condition**

You are in an area where chemical agents have been used. You are wearing protective over-garments and mask, or they are immediately available. You encounter a casualty who is breathing and lying on the ground. The casualty is partially dressed in protective clothing and is wearing the protective mask carrier with mask.

Special Condition: MOPP 4.

**Figure 4-5. Special condition statement example**

## STANDARDS

4-14. The individual task standard describes the minimum acceptable level of performance in the field to successfully accomplish the task under the prescribed conditions. It notes how well someone should perform the task to be considered competent. For SUAS flight tasks, standards are based on ideal conditions.

4-15. Standards must be—

- Written in present tense.
- Written in standard paragraph format. The paragraph may contain one or more sentences and may include subparagraphs and/or bullets.
- Written in job holder language.
- Observable, measurable, achievable, objective, valid, reliable, usable, comprehensive, discriminating, and quantifiable.

4-16. A standard statement has two parts:

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- Performance-A verb phrase that identifies what action the standard will evaluate (that is, the process the Soldier performs, the product produced, or a combination of both).
  - A process standard describes the critical task elements necessary for adequate task performance.
  - A product standard describes the end result of individual task performance. Product standards should be used when the process it takes to perform the task is not important, as long as the product (end result) is correct.
  - A combination standard is used when task performance produces both a product and process.
- Criterion-May include, but is not limited to, accuracy, quantity, speed, and quality. Table 4-1 addresses recommended criteria for each type of task performance.

Table 4-1. Task performance criteria

<i>Individual Task Standard</i>	<i>Criteria to Use</i>
Product Standard	Accuracy, tolerances, completeness, format, clarity, number of errors, and quantity.
Process Standard	Sequence, completeness, accuracy, and speed of performance.
Combination Standard	Accuracy, tolerances, completeness, format, clarity, number of errors, quantity, sequence, and speed of performance.

4-17. Parts of example standard statements may include the following:

- Fire all 18 rounds (performance) and hit the target at least 9 times (criterion).
- Camouflage the position (performance), so it cannot be detected from 35 meters forward (criterion).
- Calibrate the altimeter within 1 meter (performance) IAW TM #####-###-#### (criterion).

**Note.** It is preferred not to use a standard that refers to another document; but, in the case of aircraft maintenance, it is mandatory to use the TM. Duplicating the TM causes extra work and serves no value, since the TM is used when the task is performed.

## DESCRIPTION

4-18. Task descriptions are the “how to” portion of the task.

- Descriptions will normally be divided into two sections: crew actions and procedures.
- Ensure that the correct designation for the crewmember is used in the description to avoid confusion.
- Procedures identify the preferred method of accomplishing the task.
- Make sure the standards for the task are clearly defined in the “STANDARDS” section; however, it may be necessary to refer the reader to the description section for specific requirements.
- Deviations from task procedures—but not crew actions—are authorized as long as task standards and safety are not compromised.

## CONSIDERATIONS (NOT MANDATORY FOR ALL TASKS)

4-19. Task considerations define the different requirements for performing the task under different flight modes (visual meteorological conditions [VMC], night, or different payload sensors) or under adverse environmental conditions. They must address the unique requirements of performing the task under those conditions.

**ENVIRONMENTAL CONSIDERATIONS**

4-20. The environmental considerations section of a task must address the unique requirements of performing the task under different flight modes or under adverse environmental conditions.

4-21. The following are examples of environmental considerations:

- Altitude, apparent ground speed, and rate of closure are difficult to estimate at night.
- Surrounding terrain or vegetation may decrease contrast and degrade depth perception during the approach. Before descending below obstacles, determine the need for artificial lighting.
- Use proper scanning techniques to avoid spatial disorientation.
- Acquire, identify, track and/or designate targets using the sensor's optimum capabilities (electro-optical, infrared) for a given situation based on mission, enemy, terrain and weather, troops and support available, time available, civil considerations (METT-TC).

**REFERENCES**

4-22. The reference section of the task lists the sources of information relating to that specific task.



## **Chapter 5**

# **Unit Training**

Unit commanders are authorized to conduct refresher training at unit level. Operators receiving the training must have attended the initial operator qualification course for the SUAS being flown.

### **TRAINING PROGRAM REQUIREMENTS**

5-1. Refresher training. An operator entering refresher training will participate in training that consists of critical and unit-selected tasks. The operator must complete all training before he or she is designated MQ. The operator is designated MP during this training. Refresher training should include academic courses and practice of all tasks. During refresher training, the operator does not have semiannual proficiency and readiness test (S-APART) requirements in the SUAS in which the training is being conducted. The only requirements he or she has are those designated by the commander.

- The operator will complete the appropriate academic requirements IAW paragraph 3-12 and those tasks listed in this manual.
- All flight training in MP will be conducted by an MT.
- The operator will be evaluated by an MT.
- The operator will complete a qualified sortie at night (if applicable).

5-2. Mission training. The SUAS mission and operation of mission equipment is an integral part of being an operator qualified in a SUAS. This training must be completed before an operator is qualified to perform missions within his or her unit with a SUAS.

### **TRAINING PREREQUISITES**

5-3. An operator returning to an operator position after having been prohibited/excused from flying duties for more than 180 consecutive days will receive refresher training. When an operator enters the unit's ATP with fewer than 180 consecutive days of non-operator duties, the commander may require him or her to undergo refresher training based on a records check or a PFE.

### **TASK CONSIDERATIONS**

#### **MASTER TRAINER**

5-4. If an MT is part of a condition, he or she will be in a position close enough to assist the operator or assume control as the situation requires.

#### **VISUAL METEOROLOGICAL CONDITIONS**

5-5. Unless otherwise specified in the conditions, all in-flight training and evaluations will be conducted under VMC.

#### **EMERGENCY PROCEDURES**

5-6. The operator will know all underlined emergency procedures well enough to perform the required action from memory. Upon completion of the procedure, the checklist will be used to verify that no item was overlooked.

**Chapter 5**

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**LIMITATIONS**

5-7. Operators will maintain operation within SUAS limitations at all times. Operation outside these limits, in other than an emergency situation, is unsatisfactory.

**MISSION LEVEL TRAINING/EVALUATIONS**

5-8. All ML training and evaluations will be conducted with an MT present and in a position to gain full access to the system controls.

**TRAINING STRATEGY**

5-9. The training strategy is developed using the outcome of the training assessment. It is then issued to subordinate commanders through the commander's training guidance (CTG).

**NEAR-TERM PLANNING**

5-10. Near-term planning is used for the monthly training schedule. The operations staff officer (S-3), with assistance from the MT/brigade aviation element (BAE) UAS technician—

- Reviews training aids, devices, simulators, and simulations and allocates training resources to specific trainers.
- Ensures that training events are well structured, efficient, realistic, safe, and effective.
- Must ensure that informal evaluation and feedback by trainers and senior leaders are continuous and that formal evaluations are included in training plans. (Evaluation documentation can range from annotated training and evaluation outlines to Combat Training Center (CTC) take-home packages.)

**LONG-RANGE PLANNING**

5-11. Long-range planning is used for the new annual training calendar. The S-3, with assistance from the MT/BAE UAS technician—

- Carefully studies the brigade CTG and key training events in which the unit will participate.
- Selects appropriate training scenarios with supporting operations plans from the training support packages.
- Coordinating with the brigade, division, and the military community, chooses training event dates that do not conflict with other key calendar events.

5-12. The tools used to develop a long-range training plan are the battalion training strategy, the brigade and division's CTG, and the brigade and division long-range training calendar—12 to 18 months out. These calendars may be viewed by subordinate commanders during their unit training planning.

**QUARTERLY TRAINING CALENDAR**

5-13. When preparing the quarterly training calendar, the S-3, with assistance from the MT/BAE UAS technician—

- Studies the brigade CTG and the battalion annual training calendar.
- Identifies, allocates, and coordinates short lead-time resources such as local training facilities.
- Pays particular attention to CTC lessons learned when developing training objectives and tasks to include in an field training exercise operation order.
- Allocates time on the aviation combined arms tactical trainer and other critical training resources.
- Cross-references each event with specific training objectives and coordinates with all supporting agencies, the battalion staff, and unit commanders.

**AIRCREW TRAINING PROGRAM**

5-14. The ATP is an integral part of the commander's overall unit training program and should be briefed at each quarterly training brief. Proficient aircrews are essential to effective collective training. SUAS leaders/MTs must maintain a balance between individual, aircrew, and collective training. The ATP, mandated by AR 95-23, is a structured and prescriptive management and evaluation program focused on training Army aircrews. The ATP applies to all Army operators in operational flying positions. Developed IAW this TC and the appropriate ATM appendix, the ATP includes training of the base, mission and additional tasks necessary for the accomplishment of a unit's METL. In today's command operating environment, small unit leadership is critical to mission execution. Training must be tailored to ensure these elements are integrated into the training regime of our units. Leader supervision and participation at all levels is essential to the successful execution of the ATP.

5-15. The ATP, with the factors that affect it, is a major consideration in developing the long-range training plan. Consideration must be given to—

- Individual operator proficiency.
- Aircrew proficiency (battle-rostered crews).
- The unit maintenance program.
- Flight-hour allocation to supported units when SUAS training is conducted during supported unit missions.
- Individual and aircrew training that is usually accomplished while not in a support role; for example, emergency procedures training, and flight evaluations.
- Operator training accomplished in crew and collective simulators/simulations.

5-16. Units are required to have an ATP addressing specific requirements for conducting training, evaluation, assessment, and program revision. Commanders should use multi-echelon training objectives, scenarios, and standard training exercises (STXs) to facilitate the development, execution, and continual assessment of their training program. Scenarios and STXs for individual, crew, and collective training must be mutually supportive and progressive in intensity and complexity. Effective individual and crew training programs form the foundation for a SUAS battle-focused training program. These programs produce combat ready crews and are the basis for the unit's collective training program. Collective training must focus on combined arms/joint operations across the spectrum of the unit's METL. Limited resources, environmental restrictions, new and sophisticated aircraft mission equipment packages, and multiple contingency operations will all impact on the commander's ability to train and maintain proficiency at all levels.



## Chapter 6

# Individual Operator Training Record

The commander must ensure that a training record is prepared and maintained for each SUAS operator in an operational duty position assigned or attached to the unit. The ATP records system provides commanders with a comprehensive performance record on each operator in their unit. The required forms can be completed by hand using dark blue or black ink, by typewriter, or digitally. The forms are available at <http://armypubs.army.mil>. Aircrew training records are important quality control and standardization tools. They should be completed carefully, completely, and legibly. Examples of completed ATP forms with instructions are provided in figures 6-1 and 6-6 (pages 6-2 and 6-4); however, the examples are not intended to be all inclusive of required entries on the forms. Use the Remarks section of the forms and/or the comment slips to explain situations not clearly covered by the written guidelines.

## INDIVIDUAL OPERATOR TRAINING RECORD REQUIREMENTS

- 6-1. The training record will be maintained as follows:
- DA Form 7122-R will be used. It will be maintained in the operator's unit training folder.
  - Operators assigned or attached for flight duty will present their DA Form 7122-R to the commander or the commander's representative upon arrival into the unit.
  - DA Form 4507-R (Crew Member Grade Slip) should be used to document training and evaluation flights.

## DEPARTMENT OF THE ARMY FORM 7122-R

6-2. Purpose. DA Form 7122-R is used to permanently record all individual operator evaluations and summaries. It is also used to record any change in operator status or other significant events. General instructions for completing the form are as follows:

- Type or clearly print all entries in black, dark blue, or red ink (for out-of-sequence date entries only).
- For blocks that do not require an entry, enter "NA" for Not Applicable or a dash (—).
- To make minor corrections, use correction fluid/tape or neatly line through the incorrect information and add the correct information. Use procedures found in paragraph 6-3 to make major corrections.
- Keep entries as clear and concise as possible. Use standard abbreviations and acronyms.
- Significant related events that occur (aircraft qualification or MT course en route) during the time a crewmember departs the previous duty station and is integrated into a new ATP will be entered on DA Form 7122-R prior to the assignment entry.
- DA Form 7122-R is a two-page form; however, it is likely that one page will fill before the other. When one page of the form is filled, close out the other page of the form by drawing a diagonal line from the first unused block to the last unused block.
- Not every possible event or occurrence can be anticipated. If situations arise that are not covered by these instructions, use sound judgment and enter the event in the most logical manner.

6-3. Corrections to DA Form 7122-R may be needed for several reasons. Careful and timely entering of events as they occur will eliminate the need for corrections.

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- Out-of-sequence events. If an event is not entered at the proper time and one or more events have been recorded, enter the event as you would any other event on the next available line. Use red ink when entering the date only (to include year) for the out-of-sequence event.
- Unusable form. If enough mistakes accrue to make the form unusable, transcribe the data to a new form. Place a diagonal line across the front of the unusable form, label it "transcribed," and retain this copy of the form (permanently) under the current form.

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*Note.* Do not destroy or discard any DA Form 7122-R that contains an entry.

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## DA FORM 7122-R INSTRUCTIONS

6-4. Instructions for completing DA Form 7122-R are as follows.

## Crewmember Training Record, Page 1

- **Sheet Number.** Number each sheet in numerical order.
- **Name.** Enter the crewmember's full name (last, first, and middle initial). If reproducing the form on two separate sheets of paper, enter the crewmember's name on the first line of the second sheet, in the Remarks area, followed by the sheet number with which it corresponds.
- **PID.** Until further guidance leave this blank.
- **Rank.** Enter the crewmember's rank.
- **Birth Month.** Enter the crewmember's birth month. **Date.** Enter the day, month, and year of the event. After the first entry, it is acceptable to omit the year until entry of the first event of the following year. If an entry is out of chronological order, only the date will be in red and the year must be included.
- **A/C.** Enter the alphanumeric designation of the appropriate aircraft (for example, RQ-11A or RQ-11B). If the event was performed solely in a flight simulator, enter the simulator designation (RQ-11B SIM or VAMPIRE SIM).
- **Event.** Enter a short summary of the event on one line. Record events listed below:
  - Unit assignments and reassignments. Reassignment within the unit not requiring a DA Form 759 (Individual Flight Record and Flight Certificate-Army) closeout will be treated as a change of duty.
  - Start and completion of time-limited training programs, such as, ML progression or MT qualification.
  - Start and completion of DA qualification courses, both flying and non-flying.
  - Completion of significant training or retraining programs. (Summarize the event on one line.)
  - All evaluations.
  - MT designation.
  - Completion of the written examination.
  - All proficiency flight (oral or written) evaluations. (Specify the type of evaluation; for example a no-notice evaluation, the flight portion of a commander's evaluation, or currency evaluation.)
  - All requests for waivers or extensions and their disposition.
  - Involvements in any class A, B, C, or D accident or incident and the results of any post accident evaluation (if given).
- **Duty.** Not applicable.
- **Day (D), Night (N), Night Google (s) (NG), Night System (NS), Weather (W), Hood (H), and Simulator (Sim).** For the event being recorded, enter the number of qualified sorties conducted under the appropriate flight modes/conditions. The sortie number entered will be the sorties flown on any single flight event (such as an evaluation) or the total sorties flown in multi-flight training programs.

- **Seat.** Not applicable.
- **Recorded By.** MTs, trainers, operations personnel and others when authorized by the commander will enter their first initial, last name, rank and duty position. If the event was an evaluation and someone is recording it other than the MT, record the MT's name in the remarks section.
- **GR (grade).** If the event was graded, enter an "S" (Satisfactory) or a "U" (Unsatisfactory). For an unsatisfactory evaluation, state the specific tasks the crewmember performed unsatisfactorily and any restrictions imposed due to the failure. Provide a recommendation to the commander for retraining and re-evaluation.
- **CM Init (crewmember initials).** Brief the crewmember on the entry and ensure that the crewmember understands any change in status. Crewmembers will then initial this block. A crewmember's initials indicate that the crewmember is aware of the entry on the form and any remarks and understands any change in status. The crewmember will immediately initial any entry resulting in a change of status, such as, an unsatisfactory evaluation or a suspension. The crewmember will initial routine entries, such as, assignment to a unit or satisfactory evaluations, as soon as practical.
- **Rmk (remarks).** Enter "Yes," "Y," "No," or "N" in this column to show whether comments are entered in the Remarks section regarding the entry. Do not enter "NA" in this column or leave it blank.

**Crewmember Training Record, Page 2**

- **Date.** Include date pertinent information was recorded in remarks. Enter the date in the same format used on the front of the form.
  - **Remarks.** Record pertinent information not shown on the front of the form in this section. Do not restate information entered on the front of the form, for example, "This was a satisfactory evaluation." There is no single correct way of entering remarks. However, they should be clear, concise, and specific. When entering remarks, use standard abbreviations and acronyms or logically shortened words. If the remarks require more than one line, do not repeat the date on the second or subsequent line(s). Remarks that could be entered include the issuance of an MT qualification by an MT and an explanation of extension for completion of ATP requirements.
- 6-5. Only the following events recorded on the DA Form 7122-R require the commander's signature:
- Nonmedical suspension.
  - ML designation after failure of a hands-on performance test or a training deficiency.
  - Extensions or waivers.
  - Return to previous duties after nonmedical suspension or ML designation after failure of a hands-on performance test or a training deficiency.

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**Note.** The commander, pertaining to the training folder, is defined as the commander responsible for the ATP. Waiver and extension authority is IAW AR 95-23, local regulations, and SOPs. The appropriate commander will sign the DA Form 7122-R, page 2, when required. Memorandum for Record granting extensions or waivers signed by the commander will be retained in the miscellaneous section of the training folder until the end of the ATP year.

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**DA FORM 7122-R SAMPLE**

- 6-6. Figures 6-1 and 6-2, pages 6-4 and 6-5, provide a sample of a completed DA Form 7122-R.

[illegible]

**Figure 6-1. Sample DA Form 7122-R, page 1**

**Figure 6-2. Sample DA Form 7122-R, page 2**

## DEPARTMENT OF THE ARMY FORM 4507-R

6-7. The DA Form 4507-R will be filed on the right side of the individual aircrew training folder (IATF) until training has been completed and the event has been documented on the DA Form 7122-R. Once the event has been entered on DA Form 7122-R, then DA Form 4507-R will be removed from the IATF.

### DA FORM 4507-R INSTRUCTIONS

6-8. Instructions for completing the form are as follows.

#### DA Form 4507-R, Page 1

- **Name.** Enter the crewmember's name (last, first, middle initial).
- **Rank.** Enter the crewmember's rank.
- **PID.** Enter the individual's SUASMAN identification.
- **Unit.** Enter the unit to which the crewmember is assigned.
- **Purpose.** Enter the purpose of the training or evaluation using standard phraseology; for example, refresher training or AC evaluation.
- **Aircraft Type.** Enter the alphanumeric designation of the aircraft or flight simulator; for example, MQ-5B, RQ-7B, MQ-1C.
- **Date Started.** Enter the date on which the flight training program starts.
- **Must Complete By.** If the training program is time limited, enter the date on which the crewmember must complete it. If the date changes, line through the original date and enter the new date above it. Explain the change in the Comments section.
- **Date.** Enter the day, month, and year of the flight.
- **Flight Data.** This form provides a cumulative record of the time flown under those flight modes normally requiring minimum amounts. Record all flight time in hours and tenths of hours.
  - **Time Today.** Enter the total time flown today.
  - **Cumulative Time.** Record the total flight time accrued to date.
  - **Day Flight-Today.** Enter the time flown today under day flight conditions. For flights conducted under other than day flight conditions, enter the applicable flight mode or condition in the space provided. Then record the time flown today for that flight mode or condition.
  - **Day Flight-Cumulative.** Record the total time accrued under day flight conditions. For flights conducted under other than day flight conditions, enter the applicable flight mode or condition in the space provided. Then record the total flight time accrued to date for that flight mode or condition.
  - **Duty Position.** Enter the crewmember's duty position for the flight.
  - **Seat Position.** Enter the crewmember's seat position for the flight.
  - **Overall Grade.** Enter either "S" or "U" in the overall grade block after the crewmember completes the flight. This grade reflects the MT's/trainer's overall assessment of the flight. If the overall flight is graded a "U", a comment is required on DA Form 4507-2-R.
  - **Crewmember Initials.** Have the crewmember initial the grade slip to certify that the crewmember has been debriefed. The initials do not mean that the crewmember agrees with the results.
  - **Trainer or Evaluator Name, Rank, and Duty Position.** Enter the trainer's or the evaluator's first initial, last name, rank, and duty position.

#### DA Form 4507-R, Page 2

- **Date.** Enter date of pertinent comments.
- **Comments.** Enter pertinent comments on DA Form 4507-R. Enter sound, objective comments. If the overall flight or any individual task is graded "U", a comment is required. For unsatisfactory tasks, indicate which standards were not met and any other appropriate remarks.

These comments are important for reference by other trainers or evaluators during future training or evaluation.

**DA FORM 4507-R SAMPLE**

6-9. Figures 6-3 and 6-4, page 6-8, provide a sample of a completed DA Form 4507-R.

CREW MEMBER GRADE SLIP											
For use of this form see TC 3-04.11; the proponent agency is TRADOC.											
Name: Moody, Dwight L.					Rank: SPC			PID:			
Unit: C Trp, 407 Cavalry					Purpose: ML Progression						
Aircraft Type: RQ-11B		Date Started: 20120123			Must Complete By: 20120425						
Flight Data					Date						
					20120126						
Time Today					4.0						
Cumulative Time					4.0						
Day Flight--Today					2.0						
Day Flight--Cumulative					2.0						
N Flight--Today					2.0						
N Flight--Cumulative					2.0						
Flight--Today											
Flight--Cumulative											
Flight--Today											
Flight--Cumulative											
Duty Position					AO						
Seat Position					/						
Overall Grade					S						
Crew Member Initials					DM						
Trainer or Evaluator Name, Rank, and Duty Position					B Sunday, SGT, MT						

DA FORM 4507-R, DEC 2009

PREVIOUS EDITIONS ARE OBSOLETE.

APD PE v1.00

Figure 6-3. Sample DA Form 4507-R, page 1

**Figure 6-4. Sample DA Form 4507-R, page 2**

6-10. DA Form 4507-1-R (Maneuver/Procedure Grade Slip) is used to grade each task performed.

6-11. Figure 6-5, page 6-9, provides a sample of a completed DA Form 4507-1-R.

MANEUVER/PROCEDURE GRADE SLIP											
For use of this form see TC 3-04.11; the proponent agency is TRADOC.											
Trainee's/Examinee's Name: <u>Moody, Dwight L.</u>											
S E L E C T			DATE								
	Page No.	No. Pages	2012-01-26								
	1	1									
	MANEUVER/PROCEDURE										
<input checked="" type="checkbox"/>	Assemble SUAS		S								
<input checked="" type="checkbox"/>	Assemble Ground Control Station (GCS)		U								
<input checked="" type="checkbox"/>	Assemble Remote Video Terminal (RVT)		/								
<input checked="" type="checkbox"/>	Operate SUAS Battery Charger		S								
	Perform Airspace Management Coordination										
	Complete SUAS Preflight Mission Planning										
	Complete a SUAS Crew Mission Briefing										
	Complete SUAS Preflight Checks										
	Respond to Warning Displays										
	Complete Before Take-off Checks										
	Launch Unmanned Aircraft										
	Complete SUAS In-flight Operations										
	Complete Before Landing Checks										
	Complete Autoland Procedures										
	Complete Post Flight Procedures										
	Respond to an Emergency										
	Complete Remote Launch Procedures										
	Complete Hand-off Procedures										
	Disassemble and Store System										
	Complete SUAS Operator Level Maintenance										
	Complete Mobile Operations										
	Implement Covert Approaches										
	Implement Low-level Flying										
	Implement Low-level Approach										
	Implement Low-level Landing										
	Implement High Altitude Autoland										

DA FORM 4507-1-R, DEC 2009 PREVIOUS EDITIONS ARE OBSOLETE. APD PE v1.00

Figure 6-5. Sample DA Form 4507-1-R

**DA FORM 4507-1-R INSTRUCTIONS**

6-12. Instructions for completing the form are as follows.

- **Trainee's/Examinee's Name.** Enter the examinee's name (last, first, middle initial).
- **Select.** If the form is tailored to the training or evaluation being conducted, use as desired. If the form lists all base and mission/additional tasks, place an "X" in the selection column by each task that is mandatory for the training program or evaluation underway based on the guidance in the applicable ATM, this training circular, the commander's task list, the unit SOP, and other documents.

## Chapter 6

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- **Page No.** Enter the number of this page.
- **No. Pages.** Enter the total number of DA Forms 4507-1-R used.
- **Maneuver/Procedure.** Enter the task number followed by the task title as required by the unit's ATP. Units may list all tasks required by the commander's task list. Another option is to develop separate forms for each training program; for example; night goggle refresher training, RL progression, and mission training. Units may also use a highlighter pen or any other suitable method to track completion of tasks in different modes. Task titles may be abbreviated to fit within the space provided.
- **Date.** Enter the day, month, and year of the flight. It is acceptable to have multiple entries for the same date to specify tasks trained/evaluated in different flight modes. In the blocks under the date, the evaluator/trainer or unit trainer grades each task performed. An unsatisfactory grade "U" requires a brief description of the deficiency in the comments section of DA Form 4507-2-R (Continuation Comment Slip). Place a diagonal (/) in the grade blocks for all maneuvers or procedures not performed. When three or more consecutive tasks are not graded, place a diagonal line in the first and last task and connect the two with a straight vertical line.

## DEPARTMENT OF THE ARMY FORM 4507-2-R

6-13. The DA Form 4507-2-R is used to record comments and explain DA Form 4507-R and DA Form 4507-1-R entries, as appropriate.

### DA FORM 4507-2-R INSTRUCTIONS

6-14. Instructions for completing the form are as follows.

- **Examinee's/Trainee's Name.** Enter the examinee's name (last, first, middle initial).
- **Date.** Enter date of entry.
- **Comments.** Enter comments as necessary. Comments should be clear, concise and objective. These comments are important for reference by other trainers or evaluators during future training or evaluation.

### DA FORM 4507-2-R SAMPLE

6-15. Figure 6-6, page 6-11, provides a sample of a completed DA Form 4507-2-R.





## **Chapter 7**

# **Composite Risk Management**

Tough, realistic training conducted to standard is the cornerstone of Army warfighting skills. The battle-focused training environment places stress on both Soldiers and their equipment, creating a high potential for loss. As training realism increases, so does the potential for loss. If risk is not reduced, personnel and equipment losses caused by training mishaps pose a serious drain on warfighting assets. Accidental losses during training are no different from combat losses; in either case, the assets are gone. Commanders must find ways to protect individuals and equipment from accidents during realistic training to prepare for war. Guidance on composite risk management (CRM) is contained in FM 5-0, FM 5-19, and AR 385-10.

## **GENERAL**

7-1. An effective risk management program is vital at all levels of operations and requires the personal attention and participation of unit commanders and leaders all along the chain of command. The protection of Soldiers and their weapon systems is a way of life in the Army. An effective ATP, thoughtfully planned in conjunction with appropriate regulations and guidance, is arguably the most important factor in any unit's safety program once it is embraced by every Soldier in the unit. Flying "by the book" does not hinder, but actually enhances, a unit's battle focus. The crawl/walk/run approach to training is imperative to reduce risks, as is the active participation of commanders at all levels of the training process.

## **COMPOSITE RISK MANAGEMENT CONCEPT**

7-2. CRM is the decision-making process for identifying hazards and mitigating risks across the entire spectrum of Army missions, functions, operations, and activities. It is a holistic assessment, blending tactical and threat-based risk management with accidental, hazards-based risk management. CRM is not a stand-alone process, a paperwork drill, or an add-on feature to planning. Rather, it is used as a fully integrated element of planning and decision making. It may also be executed intuitively in situations that require hasty planning or immediate action. CRM should be viewed as part of the military art interwoven throughout the Army's military decision-making and training management cycles. CRM follows a process which personnel of all ranks must continually use. The CRM steps are shown in figure 7-1, page 7-5.

7-3. Using the CRM process, leaders identify the hazards that may cause mission degradation and loss of unit combat readiness and effectiveness. These include those hazards that may cause injury and/or death to personnel or damage and/or destruction of equipment. A commander should then determine the possible impact of each hazard on the mission, take action to minimize or eliminate the hazards, then execute the mission or modify the mission to further reduce risk.

7-4. CRM is not a restrictive measure. It is a conscious analysis of the mission itself, possible courses of action, and the implementation of appropriate controls to ensure any risk is reduced or eliminated.

7-5. The CRM process includes several terms all leaders should know. These terms are—

- CRM process. The process of identifying and controlling hazards to protect the force.
- Control. Any action taken to eliminate hazards or reduce their risk.
- Hazard. Any real or potential condition that can cause the loss of an asset. These losses include injury, illness, and death of personnel; damage to or loss of equipment or property; and mission degradation.

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- Risk. The chance of hazard or bad consequences. Exposure to a chance of injury or loss. Risk level is expressed in terms of hazard probability and severity.
- Exposure. The frequency and length of time subjected to a hazard.
- Probability. The likelihood that an event will occur.
- Severity. The expected consequence of an event in terms of the degree of injury, property damage, or other mission impairing factors that could occur.
- Risk assessment. The identification and assessment of hazards.
- Residual risk. Any anticipated level of risk remaining after controls have been identified and selected for hazards that may result in loss of combat power.
- Risk decision. Accept or not accept the risk(s) associated with an action; made by the commander, leader, manager, or individual responsible for performing that action.

7-6. The standard for CRM is leadership at the appropriate level of authority making informed decisions to control hazards or accept risks. Leaders are responsible and accountable for assessing their operation as a total system.

7-7. The degree of risk determines the level of decision authority. When resources to reduce risk to an acceptable level are not available, the risk issue must be elevated to the next higher command. This process continues until the information is presented to the level of command that has the resources and authority to eliminate the hazard or control the risk to an acceptable level. In this manner, a conscious and informed decision is made to either commit the resources to control the hazards or to accept the risk.

**RESPONSIBILITIES**

7-8. CRM is not complex, technical, or difficult and is not limited to the brigade and battalion commanders. It is a simple decision making process and a way of “thinking through a mission” to balance mission demands against known risks. Trainers/evaluators can maintain realism in training accomplishment through CRM. In peacetime, the process must be deliberate, continuous, and must become second nature to those responsible for planning, approving, or leading activities. In combat, the process is no less deliberate, though risks may be accepted as dictated by the mission priority.

**LEADERS**

7-9. What is the commanders responsibility, at all levels? Who establishes what risk: extremely high (E), high (H), moderate (M), or low (L)?

7-10. Managing risks is a leadership responsibility. At the crewmember level, MTs and instructors are the principal risk managers. Planning must incorporate consideration for known hazards and must address appropriate control measures to minimize exposure to these hazards. While CRM is introduced in the planning phase of a mission, for MTs, CRM responsibilities are not complete until the mission debriefing is complete.

7-11. To meet these responsibilities, leaders do not accept unnecessary risk. If the risk can be eliminated or reduced and the mission can still be accomplished, the risk is mitigated and acceptable. Find ways to mitigate the risk (for example, change the crew mix, change the mission execution time, provide additional preparation and training, and add additional supervision) that will still allow completion of the mission. Once hazards are identified and controls recommended, compare and balance the residual risk against the mission expectation.

7-12. Pre-mission. The commander, or other designated risk approval authority, decides if the controls are sufficient to accept the risk. If the risk is excessive, the commander can direct additional control measures, modify controls, request the next higher commander’s involvement, or reject the mission.

7-13. During mission execution. The commander cannot always be available to make every risk decision. In the aircraft, when the situation, time, or other factors do not allow for the commander’s decision, the MTs, instructors, or other unit leaders become the primary risk managers. In such cases, they should use the commander’s guidance, their professional experience, unit SOPs, ATMs, regulations, current situation,

developing conditions, and so forth as the basis upon which they formulate control measures. They should evaluate unexpected hazards that are encountered during the course of the mission and apply the appropriate control measures.

7-14. Make risk decisions at the proper level. Decisions made at the proper level eliminate the involvement of commanders not normally involved in the mission or commanders not authorized to accept the level of risk. ACs must know the appropriate level of approval authority based on the level of risk. The risk approval authority will vary between units and risk approval authority must at all levels be capable of mitigating risk or accepting that level of risk.

7-15. Weigh the risks versus the benefits. The benefits gained by accepting a residual risk must clearly outweigh the potential cost in terms of life, limb, or equipment loss should an incident occur.

7-16. Identify controls. Integrate CRM into all stages of all operations. Integration begins with the pre-mission planning and continues through the completion of the mission debriefing. Consider CRM as contingency planning. The commander and staff should look at factors that could cause the mission to fail (cause loss of life, limb, or equipment) and implement controls to minimize that probability. During the debriefing, unexpected hazards for a completed mission then become expected hazards for follow-on missions.

7-17. While crewmembers are not specifically members of the unit staff, they normally provide input to the battalion staff through their company commander. During operations, the staff normally does not occupy a crew station, but through their work, a significant portion of CRM does occur before any start switch is pressed. Some functions that the staff performs, relative to CRM, are as follows:

- Assist in the planning and identification of hazards for operations.
- Integrate CRM into operations plans and orders. In developing plans, the staff evaluates the risks, recommends controls to minimize the risks, and provides the commander with an assessment of the effectiveness of the imposed controls. In training situations, the staff—
  - Advises the commander of the controls that impact on training realism, so the commander can make the risk acceptance decision.
  - Evaluates imposed safety restrictions to ensure optimal training benefit is achieved without unnecessary restrictive measures applied.
  - Assess the operational risk. Using mission, enemy, terrain and weather, troops and support available, time available, and civil considerations factors to identify the risk to mission accomplishment, the staff begins to assess operational risks. The most important consideration is the outcome of the operation for the unit, higher headquarters, and adjacent units. Risk analysis is formulated using a course of action that is developed along the spectrum of frequent to seldom event occurrence. The staff reviews and expands or refines the list throughout the planning and execution of the exercise. The staff then evaluates the possible consequences of those risks from catastrophic to marginal, for example, the staff plans a multi-aircraft mission to airlift personnel or supplies. If the weather forecast is for marginal conditions, part of the planning should include the possibility of weather conditions degrading during the mission.

7-18. Controls the staff might propose are—

- Reinforcing those sections of the SOP pertaining to adverse weather.
- Briefing crews regarding the current and forecast adverse weather and the possible courses of action selected by the commander.
- Planning alternate transportation.
- Designating recovery airfields.

7-19. The staff should also consider the possibility of additional personnel or equipment showing up for transport than were expected. How will the crews accommodate this change? What impact will the additional payload have on the aircraft performance? Controls could include maximums on payload, additional sorties, backup aircraft, or other controls that would ensure mission accomplishment with minimum risks. There are additional hazards that could be identified in this example.

## **SAFETY OFFICER**

7-20. The safety officer—

- Is an integral part of the CRM, planning process.
- Is a special staff officer who advises the commander and staff on safety requirements and recommends controls to minimize risks.
- Participates in all phases of the military decision-making process to ensure CRM follows the commander's intent.
- Assists all staffs in integrating the CRM process into other staff functions.
- Assists the command in supervising operations to ensure application and adherence to imposed controls and provides feedback on the effectiveness of the program.

## **CREWS**

7-21. Crewmembers are a critical part of the CRM process. They perform the mission and their involvement in the planning phase is crucial to identification of hazards and controls. Crewmembers must clearly understand the controls implemented to mitigate risks. During mission execution, crewmembers must perform tasks and implement control measures to standard. The employment of good crew coordination is paramount to identifying unexpected hazards (for example enemy situation, wires, and weather) and to continuously refine controls during the mission.

## **INDIVIDUALS**

7-22. Self-discipline is critical to mission accomplishment and to an effective CRM program. The best CRM plan is worthless if the individuals performing the mission do not adhere to established controls or do not perform the tasks to standard. Individuals performing a mission are also responsible for performing CRM. While performing the mission, conditions, hazards and risks change and by necessity, CRM controls may change. The individual must constantly assess the conditions and continuously apply the principles of CRM to ensure minimum risk to themselves, fellow Soldiers, the aircraft, and the mission.

## **COMPOSITE RISK MANAGEMENT TRAINING**

7-23. Commanders must conduct CRM training for their unit. Training should emphasize the process and must reinforce the philosophy that Soldiers—crewmembers and ground personnel—are responsible for performing CRM; without a full range of participation, commanders may not make an informed decision.

## **COMPOSITE RISK MANAGEMENT PROCESS**

7-24. The CRM process is comprised of the following actions: identify hazards, assess risks, develop controls and risk decisions, implement controls, and supervise and evaluate (figure 7-1, page 7-5).

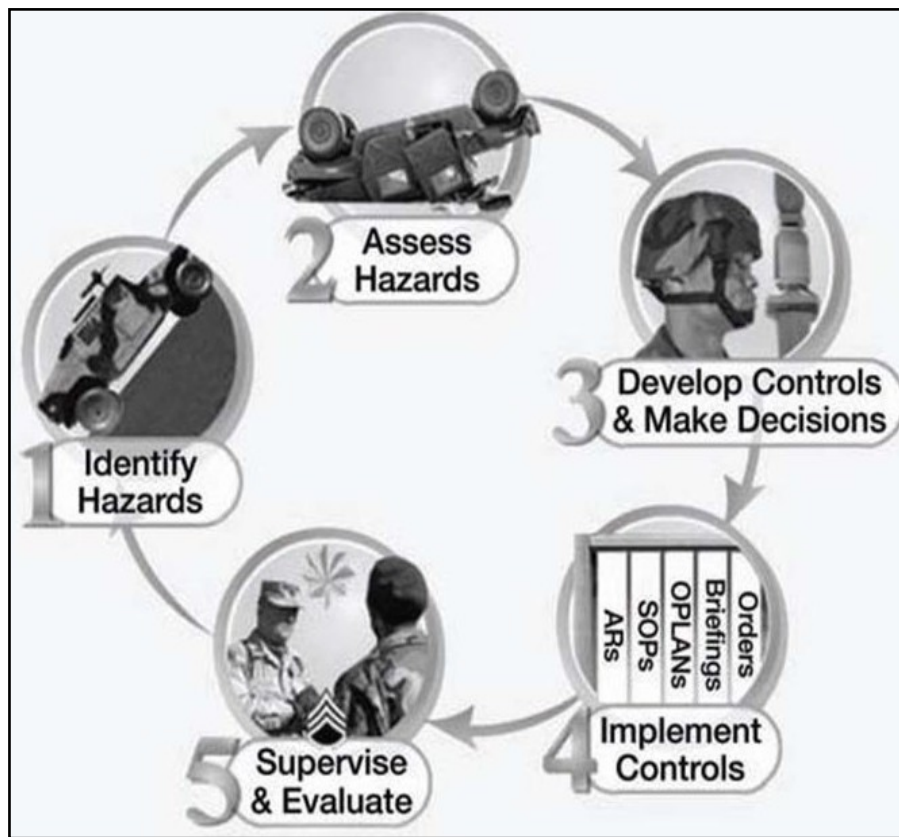


Figure 7-1. Composite risk management steps

**STEP 1-IDENTIFY HAZARDS**

7-25. Identify the major events in the mission and list chronologically. This will help identify all hazards associated with the specified as well as implied tasks.

7-26. Complete a preliminary hazard analysis of operational events. This identifies, as early as possible, the obvious hazards expected during the mission. Early identification provides more flexibility in addressing the hazards and allows more options for controls, which maximizes a leader's ability to complete the mission.

**STEP 2-ASSESS RISKS**

7-27. Determine the level of risk associated with each hazard. Commanders should ask, "Can the hazard result in a fatality, damage to equipment, or mission failure?" The degree of risk associated with each particular hazard will help define the level of controls necessary. For example, risks associated with a single operator, night, tactical flight might include lack of situational awareness, inadvertent weather, over tasking, and degraded performance, while risks associated with a multi-ship mission in the same environment would include mid air collision as well. (These are usually contained in the unit SOP or designated by the command.) Controls for the previous example may include a day route reconnaissance to establish minimum weather requirements, change the crew mix, adjust the mission execution time, conduct crew awareness briefings on recovery procedures, and single operator launch training. For multi-ship operations, controls might also include a rehearsal to practice deconfliction procedures and to specify separation distances and altitudes. Consider using the METT-TC format as another means to assess risks. Leader's can subjectively determine the likelihood and extent of accidental loss based on this type of analysis.

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**STEP 3-DEVELOP CONTROLS AND MAKE DECISIONS**

7-28. All hazards cannot be eliminated. There is a point at which the command must accept the risks and direct the mission to continue, modify the mission, or abort the mission. This is not to say that the CRM process stops. The CRM process is a continual process. There may come a time during a mission when an opportunity exists to eliminate a particular risk. That opportunity might not be apparent if the CRM process is not continual. The intent is to mitigate the probability of an accident or the severity of the consequences with prudent controls whenever the risk is evident. For example, an experienced ground crew on a night launch with sufficient personnel and good illumination still faces the possibility of engine malfunction, human error, or propeller strikes. The command has identified the controls, but cannot eliminate all the risks; it accepts the residual risks, in this case, as necessary and unavoidable.

7-29. In identifying and implementing controls, commanders should—

- Eliminate the hazard. This may include changing the crew, mission time (day versus night), equipment, or aircraft type.
- Guard or control the hazard. For flight operations, this might include routine radio calls to operations, crew mix, safety aircraft, emergency training, and minimum crew requirements.
- Change operational procedures to limit exposure to hazards, for example, minimize the number of systems or personnel or limit exposure to a particular hazard.
- Train and educate personnel in hazard recognition and avoidance. Some good examples include the limitations of night vision and the known performance and operational limits of the aircraft.
- Enforce the use of protective clothing or equipment that will minimize injury and damage potential. Examples include helmets, gloves, hearing protection, fire protected clothing, ground vehicle emergency kits, first aid training, and backup gear. Use color coding and signs to alert personnel of hazards—safety lanes in hangars, stairs, curbs, marking on aircraft for tail rotors, and arming and refueling point markings.

**STEP 4-IMPLEMENT CONTROLS**

7-30. Integrate controls into the planning. Ensuring awareness of the hazards and controls, from the commander through the individual(s) performing the task, is essential to success.

**STEP 5-SUPERVISE AND EVALUATE**

7-31. Leaders must enforce the controls and standards. The best CRM program is ineffective if the command does not enforce the controls. AOs are the leaders during SUAS missions and upholding standards must be a high priority. The most common cause of accidents is the failure of an individual to adhere to standards or a failure of the command to enforce a known standard.

7-32. Leaders must supervise activities of subordinate units. Battalion will supervise company operations; the company will supervise platoon operations, and so forth. Supervising a subordinate unit does not imply interference. Only by seeing the character of operations will leaders fully appreciate risk implications or the effectiveness of the CRM program.

7-33. Leaders at all levels are responsible for supervising operations. From private to general, all Soldiers can, and must, share in the responsibility for supervising. The purpose of this supervision is to ensure the identification of hazards and that controls are followed. Additionally, as conditions change, the supervisor continually evaluates the effectiveness of established controls to ensure successful completion of the mission.

**RISK ASSESSMENT TOOLS**

7-34. Using risk assessment tools, such as matrices and diagrams, is valuable during the planning stage of a mission. These tools do not cover the entire CRM process, but they do provide a systematic approach to identifying and reducing risk. However, do not allow the risk assessment tools to become the overriding concern of the CRM process. Tools merely provide a measurement for leaders to gauge risk and control effectiveness.

**Note.** Risk assessment tools do not make decisions. Leaders make decisions.

7-35. Probability is the likelihood of an event. This is your estimate, given what information you know and what others have experienced. The probability levels estimated for each hazard are based on the mission, course of action, or frequency of a similar event. For the purpose of CRM, there are four levels of probability—frequent, likely, occasional, and seldom (figures 7-2 and 7-3).

<b>PROBABILITY-FREQUENT</b>
Occurs very often (known to happen regularly). Given 500 or so exposures to the hazard, expect that it will definitely happen to someone. Two examples of frequent occurrences are rollovers and rear-ending a vehicle.
<b>PROBABILITY-LIKELY</b>
Occurs several times (a common occurrence). Happens every 1,000 or so exposures. Examples are IEDs, wire strikes for aircraft, controlled flight into terrain, and accidental discharges
<b>PROBABILITY-OCCASSIONAL</b>
Occurs sporadically (but is not uncommon). You may or may not get through your deployment without it happening. Two examples are UXO and fratricide.
<b>PROBABILITY-SELDOM</b>
Remotely possible (could occur at some time). Usually several things must go wrong for it to happen. Two examples are heat-related death or electrocution.

**Figure 7-2. Probability chart**

<b>PROBABILITY SEVERITY</b>	<b>FREQUENT</b>	<b>LIKELY</b>	<b>OCCASSIONAL</b>	<b>SELDOM</b>
<b>CATASTROPHIC</b>	E	E	H	M
<b>CRITICAL</b>	E	H	H	L
<b>MARGINAL</b>	H	M	L	L
E=extremely high.....Loss of ability to accomplish the mission. H=high.....Significant degradation of mission capabilities. M=moderate.....Expected degraded mission capabilities. L=low.....Little or no impact on accomplishing the mission.				

**Figure 7-3. Risk assessment matrix**

7-36. Catastrophic is defined as follows:

- Loss of the ability to accomplish the mission or mission failure.
- Death or permanent total disability (accident risk) of personnel.
- Loss of major or mission-critical system or equipment.
- Major property (facility) damage.
- Severe environmental damage.
- Mission-critical security failure.
- Unacceptable collateral damage.

7-37. Critical is defined as follows:

- Significantly (severely) degraded mission capability or unit readiness.
- Permanent partial disability, temporary total disability exceeding 3 months time (accident risk).
- Extensive (major) damage to equipment or systems.
- Significant damage to property or the environment.
- Security failure.
- Significant collateral damage.

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7-38. Marginal is defined as follows:

- Degraded mission capability or unit readiness.
- Minor damage to equipment or systems, property, or the environment.
- Lost day due to injury or illness not exceeding 3 months (accident risk).
- Minor damage to property or the environment.

7-39. One matrix cannot include all of the hazards of every mission, nor can one matrix apply to all units. Commanders must determine the usefulness and content of any risk assessment tool. Commanders must consider a number of basic principles when they use these tools.

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**Note.** Additional risk management tools can be found at <https://safety.army.mil>.

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7-40. Commanders must remember—

- Adding the numbers up and finding the right level of command to accept the risk is not CRM.
- The risk assessment matrix is most valuable during mission planning.
- Each element of the matrix represents a specific hazard that, in the risk assessment process, translates into risk.

7-41. Commanders should review the unit METL as they develop their risk assessment matrices. They should assess each METL task from the highest risk to the lowest risk. Commanders should then select the task(s) or task elements upon which they personally want to initiate risk reduction action and approval. Their risk assessment matrices should clearly show these critical elements.

7-42. Commanders should include additional items when developing the risk assessment matrix, when applicable. An example of a high-risk mission is a relief on station with an inexperienced crew that just arrived in country and restricted visibility caused by fog. The factors that play the biggest role in this example could be lack of experience and the new area of operations. Commanders may wish to refer these types of mission elements to the next higher commander for risk reduction or acceptance, because the effect of these factors greatly increases mission risk.

## Appendix A

# Small Unmanned Aircraft System Tasks

A-1. Table A-1 provides a list of SUAS tasks.

*Note.* Environmental considerations. For operations conducted in conditions such as hot/cold weather, turbulence, rain/thunderstorm, desert/sand/dust, or wind, reference system limitations in the operator's manual, AR 95-23, and FM 3-04.203.

**Table A-1. Small unmanned aircraft system task list**

<b>Prepare the SUAS for an Aerial Mission</b>	
<b>Task</b>	<b>Description</b>
<b>1001</b>	<b>Title:</b> Assemble SUAS
	<b>Condition:</b> Given an SUS, TM 1-1550-695-13&P, TM 1-1550-695-CL, and local SOP.
	<b>Standard:</b> Assemble an SUAS IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, and local SOP.
<b>1002</b>	<b>Title:</b> Assemble Ground Control Station (GCS)/Ground Control Unit (GCU)
	<b>Condition:</b> Given an SUAS GCS/GCU, TM 1-1550-695-13&P, TM 1-1550-695-CL, and local SOP.
	<b>Standard:</b> Assemble an SUAS GCS/GCU IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, and local SOP.
<b>1003</b>	<b>Title:</b> Assemble Remote Video Terminal (RVT)
	<b>Condition:</b> Given a SUAS RVT, TM 1-1550-695-13&P, TM 1-1550-695-CL, and local SOP.
	<b>Standard:</b> Assemble an SUAS RVT IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, and local SOP.
<b>1004</b>	<b>Title:</b> Operate SUAS Battery Charger
	<b>Condition:</b> Given an SUAS Unmanned aircraft Battery Charger, TM 1-1550-695-13&P, TM 1-1550-695-CL, and local SOP.
	<b>Standard:</b> Perform Battery charging with an SUAS Unmanned aircraft Battery Charger IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, and local SOP.
<b>Prepare the SUAS for Flight Operations</b>	
<b>Task</b>	<b>Description</b>
<b>1005</b>	<b>Title:</b> Perform Airspace Management Coordination
	<b>Condition:</b> Given a requirement to conduct airspace management coordination, AR 95-23, FM 3-04.155, TM 1-1550-695-13&P, TM 1-1550-695-CL, and local SOP.
	<b>Standard:</b> Perform Airspace Management Coordination IAW AR 95-23, FM 3-04.155, TM 1-1550-695-13&P, TM 1-1550-695-CL, and local SOP.
<b>1006</b>	<b>Title:</b> Complete SUAS Preflight Mission Planning
	<b>Condition:</b> Given a mission requirement, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Complete SUAS Preflight Mission Planning IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, & local SOP.
<b>1007</b>	<b>Title:</b> Complete a SUAS Crew Mission Briefing
	<b>Condition:</b> Given a requirement to conduct Crew Mission Briefing, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Complete SUAS Crew Mission Briefing IAW TM 1-1550-695-13&P, TM 1-1550-695-

## Appendix A

**Table A-1. Small unmanned aircraft system task list**

	CL, FM 3-04.155, and local SOP.
<b>1008</b>	<b>Title:</b> Complete SUAS Preflight Checks
	<b>Condition:</b> Given a requirement to conduct Preflight Checks, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Complete SUAS Preflight Checks IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>Conduct SUAS Flight Operations</b>	
<b>Task</b>	<b>Description</b>
<b>1009</b>	<b>Title:</b> Respond to Warning Displays
	<b>Condition:</b> Given an SUAS and displayed warning(s), TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Respond to Warning Displays of an SUAS IAW TM 1-1550-605-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>1010</b>	<b>Title:</b> Complete Before Takeoff Checks
	<b>Condition:</b> Given a requirement to conduct Preflight Checks, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Complete SUAS Preflight Checks IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>1011</b>	<b>Title:</b> Launch Unmanned aircraft
	<b>Condition:</b> Given a requirement to launch an SUAS unmanned aircraft, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Launch an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>1012</b>	<b>Title:</b> Complete Unmanned aircraft In-Flight Operations
	<b>Condition:</b> Given an SUAS unmanned aircraft inflight, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Complete SUAS inflight operations IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>1013</b>	<b>Title:</b> Complete Before Landing Checks
	<b>Condition:</b> Given a requirement to land an SUAS unmanned aircraft, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Complete Before Landing Checks for an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>1014</b>	<b>Title:</b> Complete Autoland Procedure
	<b>Condition:</b> Given a requirement to autoland an SUAS unmanned aircraft, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Complete Autoland Procedures for an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>1015</b>	<b>Title:</b> Complete Post Flight Procedures
	<b>Condition:</b> Given a requirement to perform post flight procedures on a landed SUAS unmanned aircraft, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Complete Post Flight Procedures for an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>1016</b>	<b>Title:</b> Respond to an Emergency
	<b>Condition:</b> Given an SUAS and an emergency(s), TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Respond to an Emergency of an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>1017</b>	<b>Title:</b> Complete Remote Launch Procedures

Table A-1. Small unmanned aircraft system task list

	<b>Condition:</b> Given a requirement to remote launch an SUAS unmanned aircraft, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP. <b>Standard:</b> Complete Remote Launch Procedures for an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
1018	<b>Title:</b> Complete Hand-off Procedures <b>Condition:</b> Given a requirement to complete Handoff Procedures with an SUAS unmanned aircraft, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP. <b>Standard:</b> Complete Handoff Procedures with an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>Perform Post-Flight Operations</b>	
<b>Task</b>	<b>Description</b>
1019	<b>Title:</b> Disassemble and Store System <b>Condition:</b> Given a requirement to disassemble and store an SUAS, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP. <b>Standard:</b> Disassemble and store SUAS IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
1020	<b>Title:</b> Complete Unmanned aircraft Operator Level Maintenance <b>Condition:</b> Given a requirement to complete SUAS unmanned aircraft operator level maintenance, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP. <b>Standard:</b> Complete SUAS unmanned aircraft operator level maintenance IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>Master Trainers</b>	
<b>Task</b>	<b>Description</b>
1021	<b>Title:</b> Prepare Lesson Plan for SUAS Instruction <b>Condition:</b> Given a task to be trained, a subject relating to SUAS, target audience, a list of available resources to include training aids/equipment, FM 7-0, TR 350-70, and the United States Army Aviation Warfighting Center Instructor Pilot Handbook. <b>Standard:</b> Develop a lesson plan that provides a training objective, content, and training standards for a selected task or SUAS-related subject.
1022	<b>Title:</b> Conduct SUAS Academic Instruction <b>Condition:</b> Given a subject relating to SUAS to be trained, a lesson plan, target audience, reference material covering the subject, a list of available resources to include training aids/equipment, FM 7-0, TR 350-70, and the United States Army Aviation Warfighting Center Instructor Pilot Handbook. <b>Standard:</b> Train an SUAS-related academic subject IAW the lesson plan.
1023	<b>Title:</b> Conduct SUAS Flight Instruction <b>Condition:</b> Given flight training in an SUAS, target audience, reference material covering the subject, a list of available resources to include training aids/equipment, FM 7-0, TR 350-70, and the United States Army Aviation Warfighting Center Instructor Pilot Handbook. <b>Standard:</b> Train SUAS flight subjects or task(s) IAW the lesson plan.
<b>Unit Selected Tasks</b>	
<b>Task</b>	<b>Description</b>
2001	<b>Title:</b> Complete Mobile Operations <b>Condition:</b> Given a requirement to complete Mobile Operations with an SUAS unmanned aircraft, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP. <b>Standard:</b> Complete Mobile Operations with an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
2002	<b>Title:</b> Implement Covert Approaches

## Appendix A

**Table A-1. Small unmanned aircraft system task list**

	<b>Condition:</b> Given a requirement to implement Covert Approaches with an SUAS unmanned aircraft, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Implement Covert Approaches with an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>2003</b>	<b>Title:</b> Implement Low Level Flying
	<b>Condition:</b> Given a requirement to implement Low Level Flying with an SUAS unmanned aircraft, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Implement Low Level Flying with an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>2004</b>	<b>Title:</b> Implement Low Level Approach
	<b>Condition:</b> Given a requirement to implement Low Level Approach with an SUAS unmanned aircraft, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Implement Low Level Approach with an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>2005</b>	<b>Title:</b> Implement Low Level Landing
	<b>Condition:</b> Given a requirement to implement Low Level Landing with an SUAS unmanned aircraft, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Implement Low Level Landing with an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
<b>2006</b>	<b>Title:</b> Implement High Altitude Autoland
	<b>Condition:</b> Given a requirement to implement High Altitude Autoland with an SUAS unmanned aircraft, an SUAS, TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.
	<b>Standard:</b> Implement High Altitude Autoland with an SUAS unmanned aircraft IAW TM 1-1550-695-13&P, TM 1-1550-695-CL, FM 3-04.155, and local SOP.

## **Glossary**

<b>AO</b>	aircraft operator
<b>AR</b>	Army regulation
<b>ARNG</b>	Army National Guard
<b>ATM</b>	aircrew training manual
<b>ATP</b>	aircrew training program
<b>BAE</b>	brigade aviation element
<b>CAT</b>	combined arms training
<b>CL</b>	checklist
<b>CRM</b>	composite risk management
<b>CTC</b>	Combat Training Center
<b>CTG</b>	commander's training guidance
<b>DA</b>	Department of the Army
<b>FAA</b>	Federal Aviation Administration
<b>FM</b>	field manual
<b>GCS</b>	ground control station
<b>GCU</b>	ground control unit
<b>IATF</b>	individual aircrew training folder
<b>IAW</b>	in accordance with
<b>IETM</b>	integrated electronic technical manual
<b>LASER</b>	light amplification by stimulated emission of radiation
<b>METL</b>	mission essential task list
<b>METT-TC</b>	mission, enemy, terrain and weather, troops and support available, time available, civil considerations
<b>ML</b>	mission level
<b>MOPP</b>	mission-oriented protective posture
<b>MP</b>	mission preparation
<b>MQ</b>	mission qualified
<b>MT</b>	master trainer
<b>PFE</b>	proficiency flight evaluation
<b>RVT</b>	remote video terminal
<b>S-3</b>	operations staff officer
<b>S-APART</b>	Semi-Annual Proficiency and Readiness Test
<b>SOP</b>	standing operating procedures
<b>STX</b>	standard training exercise
<b>SUAS</b>	small unmanned aircraft system
<b>SUASMAN</b>	small unmanned aircraft systems manager
<b>TB</b>	technical bulletin
<b>TC</b>	training circular
<b>TDY</b>	temporary duty

## Glossary

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<b>TM</b>	technical manual
<b>TRADOC</b>	United States Army Training and Doctrine Command
<b>UAC</b>	unmanned aircraft crewmember
<b>UAS</b>	unmanned aircraft system
<b>USAACE</b>	United States Army Aviation Center of Excellence
<b>USAR</b>	United States Army Reserve
<b>USSOCOM</b>	United States Special Operations Command
<b>VMC</b>	visual meteorological conditions

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- DA Form 4507-R. Crew Member Grade Slip.
- DA Form 4507-1-R. Maneuver/Procedure Grade Slip.
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### READING RECOMMENDED

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**TC 3-04.62**  
Publication Date

By order of the Secretary of the Army:

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*General, United States Army*  
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**DISTRIBUTION:**

*Active Army, Army National Guard, and United States Army Reserve:* To be distributed in accordance with the initial distribution number (IDN) ??????, requirements for TC 3-04.62.

